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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Shinya Kadono

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EXAMINER

PRINCE, JESSICA MARIE

ART UNIT

PAPER NUMBER

2482

NOTIFICATION DATE

DELIVERY MODE

11/23/2010

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	<b>Application No.</b> 10/500,575	<b>Applicant(s)</b> KADONO ET AL.	
	<b>Examiner</b> JESSICA ROBERTS	<b>Art Unit</b> 2482	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 02/16/2010.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☐ Claim(s) 27-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 27-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>05/18/2010; 03/24/2010</u> .                                  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 02/16/2010 has been entered.

### ***Response to Arguments***

Applicant's arguments with respect to claims 27-30 have been considered but are moot in view of the new ground(s) of rejection.

2. As to Applicants argument regarding that Sohm fails to disclose or suggest the features of the present invention (as recited in independent claims 27 and 29) of generating motion vectors using (a) 0 vector or (b) a motion vector of a macroblock located around a current macroblock based on the determination.

The examiner respectfully disagrees. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., generating motion vectors using (a) 0 vector or (b) motion vector of a macroblock located around a current macroblock based on the determination are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

As to Applicants argument regarding Frederiksen fails to disclose generating a predictive image of the current block which is co-located with the co-located block, based on the result of the judging of whether the size of the obtained motion vector of the corner block is within the predetermined range.

3. The examiner respectfully disagrees. It is the combination of the Sohm (modified by ISO-14496, Tucker, Frederiksen, and well known prior art) as a whole that teaches and suggest the claimed limitation. In this case, Frederiksen teaches where data entering the vector quantizer 21 first undergoes threshold based data reduction. Each incoming vector is compared to a threshold value which is set by the data flow controller 60 based on the output FIFO 64 occupancy. If the resultant difference is less than the threshold value, a zero vector value is inserted for the vector, column 7 line 45-50.

Therefore, taking the teachings of Sohm where it is disclosed to obtain a corner macroblock (fig. 9 and col. 17 line 20-28) with Frederiksen's teaching of each incoming vector is compared to a threshold value which is set by the data flow controller 60 based on the output FIFO 64 occupancy. If the resultant difference is less than the threshold value, a zero vector value is inserted for the vector, it is clear to the Examiner that now disclosed, is for the motion vector of the corner block is within a predetermined range, the image is generated by inserting a zero value vector for the vector, which reads upon the claimed limitation. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642

F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

1.

### ***Status of Claims***

2. Claims 27-30 are currently pending in Application 10/500,575. Claims 1-26 have been cancelled by Applicant's amendment filed on 10/31/2008.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 27 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sohm et al., US-7,260,148 in view of Information Technology-Coding of audio-visual-objects- Part 2: Visual ISO/IEC 14496-2 Second Edition 2001-12-01 (herein referenced as ISO-14496) in view of Tucker et al., US-5,903,313 in view of Frederiksen

et al., US-5,272,529 and further in view of well known prior art (Official Notice) and further in view of Wang et al., US-2005/0152454A1.

6. Regarding **claim 27**, Sohm teaches A motion compensation method for generating a predictive image of a current macroblock included in a current picture with reference to a motion vector of an adjacent macroblock that is located adjacent to the current macroblock, the motion compensation method comprising: specifying, using an adjacent macroblock specifying unit (fig. 1 and 2), plural adjacent macroblocks which are in the current macroblock and are already decoded (column 17 line 11-19 and Fig. 9); deriving, using a co-located macroblock specifying unit (fig. 1 and 2), a motion vector of a current block included in the current macroblock using plural motion vectors of the specified plural adjacent macroblocks (column 2 line 65-67 and fig. 4); specifying, using a co-located macroblock specifying unit (fig. 1 and 2), a co-located macroblock which is co-located with the current the current macroblock and included in a picture different from the current picture including the current macroblock (fig. 4); obtaining, using a motion vector obtaining unit (fig. 1 and 2), a motion vector of a corner block located in a corner of the co-located macroblock (column 17 line 20-28 and fig. 9). Sohm does not explicitly disclose when a co-located block is composed of a plurality of blocks for which motion compensation has been performed and a size of each of the plurality of blocks is different from a size of the current block, the co-located block, being co-located with the current block included in the current macroblock and being included in the co-located macroblock;, wherein in the generating of a predictive image of the current block, the generating is performed in such a manner that, if a size of the

obtained motion vector is judged within the predetermined range, the predictive image of the current block is generated by setting the motion vector of the current block to be "0", and the generating is performed in such a manner that, if a size of the obtained motion vector of the corner block is judged beyond the predetermined range, the predictive image of the current block is generated by setting the motion vector of the current block to be the derived motion vector.

7. However ISO' teaches co-located block is composed of a plurality of blocks for which motion compensation has been performed, the co-located block, being co-located with the current block included in the current macroblock and being included in the co-located macroblock (7.6.9.5.1 Formation of motion vectors for the direct mode).

8. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of ISO'14496-2 with Sohm for providing improved image coding.

9. Sohm (modified by ISO-14496-2) does not explicitly teach judging, using a generating unit, if a size of the obtained motion vector of the corner block is within a predetermined range; generating a predictive image of the current block which is co-located with the co-located block, based on the result of the judging of whether the size of the obtained motion vector of the corner block is within the predetermined range.

10. However, Tucker teaches judging, using a generating unit if a size of the obtained motion vector of the corner block is within a predetermined range; generating a predictive image of the current block which is co-located with the co-located block, based on the result of the judging of whether the size of the obtained motion vector of

the corner block is within the predetermined range (The video processing system processes a compressed video data stream including a plurality of macroblocks of which some of the macroblocks have a motion vector associated therewith. The method includes the steps of selecting macroblocks in the compressed video data stream whose motion vector exhibit a magnitude greater than a predetermined threshold value. The remaining macroblocks whose motion vector or motion vectors do not exceed the threshold are not motion compensated, column 4 line 27-39, column 7 line 29-51, and fig. 3-4B.

11. Therefor, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of Tucker with Sohm (modified by ISO'14496-2) for improved efficiency of motion compensation.

12. Sohm (modified by ISO'14496-2 and Tucker) is silent in regards to wherein in the generating of a predictive image of the current block, the generating is performed in such a manner that, if a size of the obtained motion vector of the corner block is judged within the predetermined range, the predictive image of the current block is generated by setting the motion vector of the current block to be "0", and the generating is performed in such a manner that, if a size of the obtained motion vector of the corner block is judged beyond the predetermined range, the predictive image of the current block is generated by setting the motion vector of the current block to be the derived motion vector.

13. However, Frederiksen teaches generating of a predictive image of the current block, the generating is performed in such a manner that, if a size of the obtained



motion vector of the corner block is judged within the predetermined range, the predictive image of the current block is generated by setting the motion vector of the current block to be "0" (Frederiksen teaches where data entering the vector quantizer 21 first undergoes threshold based data reduction. Each incoming vector is compared to a threshold value which is set by the data flow controller 60 based on the output FIFO 64 occupancy. If the resultant difference is less than the threshold value, a zero vector value is inserted for the vector, column 7 line 45-50. Therefore, taking the teachings of Sohm where it is disclosed to obtain a corner macroblock (fig. 9 and col. 17 line 20-28) with Frederiksen's teaching of each incoming vector is compared to a threshold value which is set by the data flow controller 60 based on the output FIFO 64 occupancy. If the resultant difference is less than the threshold value, a zero vector value is inserted for the vector, it is clear to the Examiner that now disclosed, is for the motion vector of the corner block is within a predetermined range, the image is generated by inserting a zero value vector for the vector, which reads upon the claimed limitation).

14. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of Frederiksen with Sohm (modified by ISO'14496-2 and Tucker) for providing more efficient image processing.

15. Sohm (modified by ISO'14496-2, Tucker, and Frederiksen) are silent in regards to generating is performed in such a manner that, if a size of the obtained motion vector of the corner block is judged beyond the predetermined range, the predictive image of the current block is generated by setting the motion vector of the current block to be the derived motion vector.

16. However, Official Notice is taken that both the concept and advantage of providing the limitations as claimed are notoriously well known and expected in the art, and therefore, would have been obvious to incorporate in Sohm (modified by ISO'14496-2, Tucker, and Frederiksen) for providing more efficient motion compensation.

17. Sohm (modified by ISO-14496, Tucker, Frederiksen, and well known prior art) as a whole is silent in regards to a block is composed of a plurality of blocks for which a size of each of the plurality of blocks is different from a size of the current block.

18. However, Wang discloses that figs. 3A-3F shows that a macroblock can be further divided into smaller sized blocks. For example, as shown in fig. 3a-f, a macroblock can be further divided into blocks sizes of 16 by 8 pixels (fig. 3a, 300), 8 by 16 pixels (fig. 3b; 301), 8 by 8 pixels (fig. 3c; 302), 8 by 4 pixels (fig. 3d; 303), 4 by 8 pixels (Fig. 3e, 304) or 4 by 4 pixels (fig. 3f; 305). Since Wang discloses that a macroblock can be divided into a plurality of smaller block sizes, when the current block (16 by 16) is divided into a smaller co-located block (16 by 8), the co-located block is comprised of a plurality of smaller blocks; each smaller block will be co-located with the previous macroblock division. Therefore, it is clear to the examiner that Wang discloses that a current block is composed of a plurality of blocks of different sizes, which reads upon the claimed limitation.

19. Therefore, it would have obvious to one skilled in the art at the time of the invention to have a plurality of co-located blocks be of a different size than the current block, since it is known that a macroblock can be divided into smaller block sizes.

20. Re claims 29, see the rejection and analysis for claim 27, except this is a method claim with the same limitations as claim 27.

21. Claims 28 and 30 rejected under 35 U.S.C. 103(a) as being unpatentable over Sohm et al., US-7,260,148 in view of Information Technology-Coding of audio-visual-objects- Part 2:Visual ISO/IEC 14496-2 Second Edition 2001-12-01 (herein referenced as ISO-14496) in view of Tucker et al., US-5,903,313 in view of Frederiksen et al., US-5,272,529 in view of well known prior art (Official Notice) and in view of Wang et al., US-2005/0152454A1, and further in view of Chang et al., US-6,483,876.

22. Regarding **claim 28**, Sohm (modified by ISO'14496-2, Tucker, and Frederiksen) as whole are silent in regards The motion compensation method according to claim 27, wherein a size of the current macroblock, the adjacent macroblock and the co-located macroblock is 16 pixel x 16 pixels, a size of the current block and the co-located block is 8 pixels x 8 pixels, and a size of each of the plurality of blocks which are included in the co-located macroblock and for which motion compensation has been performed in 4 pixels x 4 pixels.

23. However, Chang teaches wherein a size of the current macroblock, the adjacent macroblock and the co-located macroblock is 16 pixel x 16 pixels, a size of the current block and the co-located block is 8 pixels x 8 pixels, and a size of each of the plurality of blocks which are included in the co-located macroblock and for which motion compensation has been performed in 4 pixels x 4 pixels. (Fig. 2 illustrates one iteration of a conventional block-matching process. Current picture 220 is shown divided into blocks. Each block can be any size; however, in an MPEG device, for example, current

picture 220 would typically be divided into blocks each consisting of 16.times. 16 -sized macroblocks, column 2 line 54-59).

24. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teaching of Chang for providing more efficient motion estimation.

25. Re claim 30, see the rejection and analysis for claim 28, except this is a method claim with the same limitations as claim 28.

***Contact information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JESSICA ROBERTS whose telephone number is (571)270-1821. The examiner can normally be reached on 7:30-5:00 EST Monday-Friday, Alt Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha D. Banks-Harold can be reached on (571) 272-7905. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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